



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10**

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OFFICE OF
ENVIRONMENTAL CLEANUP

MEMORANDUM

SUBJECT: Action Memorandum for the Gorst Creek-Bremerton Auto Wrecking Landfill, Kitsap County, Washington

FROM: Jeffry Rodin, Federal On-Scene Coordinator
Emergency Response Unit
Emergency Management Program

THRU: Wally Moon, Manager
Emergency Preparedness and Prevention Unit

TO: Chris Field, Program Manager
Emergency Management Program

I. PURPOSE

The purpose of this Action Memorandum is to document approval of the non-time-critical removal action described herein for the Gorst Creek/Bremerton Auto Wrecking Landfill, Kitsap County, Washington ("Gorst Creek Landfill" or "Site").

This proposed non-time-critical removal action is expected to be performed by the U.S. Environmental Protection Agency (EPA) and in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended. Funding for the removal action will be provided through an agreement pursuant to Section 122 of the CERCLA, 42 U.S.C. § 9622, between EPA, the ST Trust and the U.S. Department of the Navy (Navy).

II. SITE CONDITIONS AND BACKGROUND

The CERCLIS ID No. is WAN001002414 and the Site ID No. is 10GL.

A. Site Description

1. Removal site evaluation

The Site is a former landfill that operated from approximately 1968 to 1989. The Site is estimated to contain approximately 150,000 cubic yards of waste including automotive wrecking waste, construction waste, industrial trash, medical wastes, and other wastes from public dumping. The sources of the waste disposed of at the Site include the adjacent automotive wrecking yard, the Puget Sound Naval Shipyard, construction and demolition companies and residential dumping. Landfilling operations at the Site ceased in 1989 but the landfill was not closed pursuant to applicable landfill closure regulations.

Site investigations and assessments have detected an array of hazardous substances in environmental media at and downstream of the landfill, including chlorinated pesticides, polychlorinated biphenyls (PCBs), semivolatile organic compounds (SVOCs), volatile organic compounds (VOCs), and metals. There is substantial information indicating that human health and environmental impacts are present at the Site.

2. Physical location

The Site is located at 4275 State Highway 3 SW, approximately 5 miles southwest of Port Orchard, 6 miles south-southwest of Bremerton, and 1.5 miles west of Gorst, Washington (see Figure 1-1, Site Location Map). The Site is located within Gorst Creek, approximately 2.5 miles upstream of Gorst Creek's confluence with Puget Sound at Sinclair Inlet. The site is located at latitude 47.509968° and longitude -122.740767° in the northwest quarter of the southwest quarter of Section 1, Township 23 North, Range 1 West.

The Site and immediate properties to the northeast are zoned "business center" and are not occupied by residents. Adjoining land is zoned as incorporated city and rural residential. The population within one mile of the Site is 1,027.

Gorst Creek flows northwest beneath the landfill through an approximately 880 foot-long, 24-inch diameter corrugated steel culvert. Immediately downstream of the landfill, Gorst Creek flows under State Highway 3 SW through a 48-inch diameter box culvert.

The Gorst Creek area has a temperate climate characterized by warm dry summers and wet, semi-mild winters. The average annual precipitation is 56.37 inches (of which 5.33 is snow), and the average annual temperature is 59.9 degrees Fahrenheit.

A review of sensitive plant and animal species information for the vicinity of the Site indicated that coast-resident cutthroat trout (*O. clarki* [Washington State priority species]) occur or migrate in Gorst Creek. Cutthroat trout have been observed in Gorst Creek immediately downstream of the Site. The U.S. Fish and Wildlife Service (USFWS) indicated that the bull trout (*Salvelinus confluentus*) – Coastal-Puget Sound distinct population segment and marbled murrelet (*Brachyramphus marmoratus*) are listed as threatened species that may be present at or around the Site. Also, the USFWS considers the yellow-billed cuckoo (*Coccyzus americanus*) as a candidate species in Kitsap County and 12 other animals as

species of concern in Kitsap County. (Ref 1)

The National Marine Fisheries Service (NMFS), a branch of NOAA, identified the Puget Sound Chinook salmon (*O. tshawytscha*) evolutionarily significant unit and Puget Sound steelhead (*O. mykiss*) distinct population segment as federally listed threatened species in Puget Sound (National Marine Fisheries Service August 15, 2011). Federally listed threatened Chinook salmon (*O. tshawytscha*) have historically used Gorst Creek, including the portion of the Creek collocated with the Site, for spawning from the headwaters of the Creek down to Sinclair Inlet (Huff 2003a, WDFW 2002). The Suquamish Tribe operates a Chinook salmon fish hatchery in Gorst Creek downstream of the Site. (Ref 2)

3. Site characteristics

The Gorst Creek Landfill is a triangular-shaped parcel of approximately 5.7 acres located within a ravine through which Gorst Creek flows. The ravine was 60 to 80 feet deep at this location before landfilling operations began in 1968. To create the landfill, Gorst Creek was channeled through a 24-inch steel culvert at the bottom of the ravine. From 1968 until 1989, waste was disposed of in the ravine on top of the culvert. The culvert under the landfill, which is approximately 880 feet in length, has collapsed under the weight of the disposed waste in at least two locations, thus diminishing the flow capacity of the culvert. The diminished flow capacity of the culvert results in the impoundment of water upstream of the landfill, causing water to seep and flow through the landfill. During periods of heavy precipitation impounded water periodically overtops and scours the landfill cover, causing the landfill to erode and dispersing waste material and debris into the downstream reaches of Gorst Creek. Presently, the top of the landfill is flush with the surrounding topography and is overgrown with vegetation and covered with debris.

The Site began operating as a landfill in 1968 under the name Ames Auto Wrecking. At this time, the Site and Ames Auto Wrecking were owned by Mel Marler of Bremerton, Washington, who operated the landfill until 1972. In 1968 the 24-inch steel culvert was installed to confine the Gorst Creek flow within a pipe, allowing waste disposal across the full breadth of the Gorst Creek Ravine. In 1972, the property was purchased by Earl King and Louis King. In 1973, K. R. Crawford and Clara D. Crawford and Northern, Inc. became partners with the Kings in ownership of the Site. Mr. and Mrs. King, Mr. and Mrs. Crawford, and Northern, Inc. operated the landfill under the name of Ames Refuse Bremerton Auto Wrecking, Inc. until 1980. In 1980, the property was obtained by Sid Uhinck and Lucille Uhinck who operated the Site as Bremerton Auto Wrecking, Inc. until its closure in 1989. In 2000, the Site was acquired by Kitsap County by tax foreclosure. In February 2001, Vern L. Padgett of Tacoma, Washington purchased the property from the Kitsap County Treasurer at a tax foreclosure sale. In February 2002, Mr. Padgett executed a quit claim deed granting the property to the Carina Trust. In November 2002, the Carina Trust executed a quit claim deed granting the property to Mr. William J. Nilles Senior. In 2005, Mr. William J. Nilles Senior executed a quit claim deed granting the property to the ST Trust. The current trustee of the ST Trust is Mr. William J. Nilles Junior.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

The contaminants of concern at the Site include metals (chromium, cobalt, lead, cadmium, copper, manganese, mercury, nickel, and zinc), and PCBs (Aroclor 1248 and Aroclor 1254) which are all hazardous substances as defined by Section 101(14) of CERCLA, as amended, 42 U.S.C. § 9601(14).

Data regarding the nature and extent of the contaminants of concern found at the Site are summarized below. A more thorough discussion of the Site investigations and data is presented in the Engineering Evaluation/Cost Analysis (EE/CA) completed for the Site in 2012.

The EPA conducted a preliminary assessment at the Site in 2003 and an integrated assessment in 2003-2004. During the integrated assessment, subsurface samples were collected from six boreholes drilled directly into the landfill, and six surface soil samples were also collected at the same locations. Sediment samples were collected from Gorst Creek at locations including downstream of the landfill between the landfill and State Highway 3, downstream of State Highway 3, and just upstream of the landfill near the southeastern slope of the landfill. The results of the integrated assessment indicated that the Aroclor 1254, benzo(a)pyrene, benzo(a)anthracene, and lead in Site soil samples exceeded health-based screening levels. Dichlorodiphenyltrichloroethane (DDT), dichlorodiphenyldichloroethylene (DDE), Aroclor 1254, and copper exceeded the National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQuiRT) screening levels in sediment samples located between the landfill and State Highway 3 and downstream of State Highway 3. In addition to these contaminants of concern, the integrated assessment noted that medical waste may also be present in the landfill.

In an effort to collect additional information to prepare the EE/CA, the EPA collected additional surface soil samples and sediment samples in July 2011. Surface soil samples were collected from seven locations in the landfill from the surface to 6 inches depth. Laboratory results indicated chromium at concentrations ranging from 19.6 milligram per kilogram (mg/kg) to 47.8 mg/kg, exceeding the EPA Regional Screening Level (RSL) of 5.6 mg/kg for industrial soils, and the Washington Model Toxics Control Act (MTCA) Method A level of 19 mg/kg. Sediment samples from Gorst Creek were tested using 10-day midge (*Chironomus dilutus*) and 28-day amphipod (*Hyalella azteca*) sediment bioassays, as well as chemical analyses for VOCs, SVOCs, pesticides, PCBs, and metals. While no EPA or MTCA screening level exceedances of chemicals of potential concern were observed in the sediment samples, the sediment screening results suggest that growth of benthic organisms may be impaired in Gorst Creek, which may result in less prey for fish, amphibians, and other organisms that feed on benthic organisms. Consequently, sediment contamination may be having a negative impact.

The EPA collected subsurface soil samples and a groundwater sample in August 2011 using an auger drilling rig. The chemicals of potential concern that exceeded the MTCA's cleanup levels and EPA's RSLs for Chemical Contaminants at Superfund Sites (RSLs) included three metals (arsenic, chromium, and cobalt) and two VOCs (chloroform and methyl tert-butyl ether [MTBE]).

In addition to being a source of chemical contaminants to downstream receptors, the landfill has released solid waste into Gorst Creek as a result of high stream flows overtopping and scouring the landfill. In

1997, 2002, 2007 and 2009 after significant storm events, Gorst Creek backed up on the southeast side (upstream side) of the landfill and overtopped the surface of the landfill, causing a portion of the northwest slope of the landfill to fail and wash waste downstream into Gorst Creek. Review of a 2003 inspection video revealed a collapse of the culvert approximately 460 feet upstream of the outflow, severely diminishing the maximum flow capacity of the culvert. A partial collapse was also noted approximately 20 feet downstream of the culvert inflow. Waste from the landfill has been found in Gorst Creek at distances of up to 0.5 miles downstream of the landfill. The erosion of waste and debris from the landfill has obstructed the entrance to the culvert under Washington State Highway 3, prompting the Washington Department of Transportation to take action to remove the obstruction due to concern that a clogged culvert could cause Gorst Creek to impound next to State Highway 3, raising concerns of localized flooding, erosion and damage to the highway embankment and roadway.

5. NPL status

The Site is not listed on the National Priorities List (NPL).

6. Maps, pictures, and other graphic representations

Refer to Figure 1-1 for vicinity map, Figure 1-2B for a site features map, and Figure 3-3 and 3-4 for graphical depiction of the proposed ravine and creek restoration.

B. Other Actions to Date

1. Previous actions

On March 19, 1997, after a significant rainfall event (7.3 inches in 24 hours), Gorst Creek backed up behind the landfill and flooded across the surface of the landfill which caused a portion of the northwest slope of the landfill to fail and wash waste downstream into Gorst Creek (Hart Crowser 2000). Landfill waste was found approximately 0.5 mile downstream in Gorst Creek (Holdcroft 2003). After this slope failure, Washington Department of Transportation installed two rip rap catchment berms with corrugated metal 24-inch culverts were installed on Gorst Creek in an attempt to stop future possible slope failures from washing landfill waste and debris downstream and potentially impacting Washington State Highway 3. The work conducted by Washington Department of Transportation was conducted independently. However, in January 2002, after another heavy rainfall event, Gorst Creek backed up and flooded over the landfill resulting in another slope failure (Holdcroft 2003). This slope failure was smaller than the 1997 failure; however, landfill waste and debris was again released downstream into Gorst Creek, when the most upstream rip rap catchment berm was destroyed by the flood event. The lower catchment berm was washed out sometime after 2003.

There are no government or private actions that have been undertaken in the past under authority of CERCLA or the Clean Water Act that have not been previously discussed.

2. Current actions

There are no government or private activities that are currently being performed at the Site.

C. State and Local Authorities' Roles

1. State and local actions to date

The State of Washington Department of Ecology (Ecology), the Kitsap County Health Department, and the City of Bremerton have been and will continue to be involved with planning for and conducting EPA response activities.

2. Potential for continued State/local response

There are no State agencies with the capabilities to address or implement an appropriate removal strategy for the Gorst Creek landfill. There are no local agencies with the capabilities and appropriate authorities to address or implement an appropriate removal strategy for the Gorst Creek landfill.

Washington Department Ecology, Washington State Department of Fish and Wildlife, along with other federal, state, local, and tribal entities will provide support to the removal action through technical review and comments on Habitat Restoration Plan and designs as requested by EPA.

3. Government-to-government consultation with the Suquamish Tribe

Staff-to-staff level coordination has occurred between the EPA and the Suquamish Tribe regarding the characterization of the Site and with development of the proposed removal action for the Site. On April 16, 2012, the EPA offered the Suquamish Tribe formal government-to-government consultation on the EE/CA, which was completed on January 25, 2013. The EPA offered formal consultation to the Tribe on the action selected by this Action Memorandum on July 23, 2015. The Suquamish tribe accepted EPA invitation for formal consultation and a future meeting is currently scheduled.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The current conditions at the Site meet the following factors which indicate that the Site is a threat to the public health or welfare or the environment and a removal action is appropriate under Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

A. Threats to Public Health or Welfare

1. Exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants (300.415[b][2][I])

Potential human exposure routes include direct contact with hazardous substances, pollutants or contaminants in surface soil, groundwater, sediment, and surface water. Routes of exposure include ingestion, dermal absorption, and inhalation. Human receptors include nearby residents, visitors to the Site, trespassers, and passers-by. Additionally, the eroded waste from the landfill, including hazardous

substances, pollutants or contaminants, in the stream sediments and water is being transported from the Site downgradient into the Gorst Creek watershed, presenting potential offsite exposure routes. Some metals are carcinogenic or toxic, and may adversely impact humans, affecting the central nervous system (mercury, lead), kidneys or liver (mercury, lead, cadmium, copper), or skin, bones and teeth (nickel, cadmium, copper, chromium). Polychlorinated Biphenyls (PCBs) cause a variety of adverse health impacts to animals including cancer and other detrimental effects to the immune system, reproductive system, nervous system, and endocrine system.

2. Minimization or elimination of the effects of weather conditions that may cause hazardous substances, pollutants or contaminants to migrate or to be released (300.415[b][2][v])

Heavy rain storms which could occur any time of year, but most typically occur during the fall and winter months, can cause water impoundment upstream of landfill due to the reduced flow capacity in the damaged culvert beneath the landfill. The impounded water can cause increased water levels within the landfill, saturating the landfill waste. Severe impoundment may result in water overtopping of the landfill, scouring the landfill cover, and dislodging landfill waste which is deposited downstream, as occurred during storm events in 1997, 2002, 2007 and 2009.

The erosion of the landfill, and increase of water flow through the landfill contributes to waste in the stream, increase sedimentation and contaminants being transported down gradient into the Gorst Creek watershed. The contamination at the Site includes pesticides, PCBs, SVOC, metals, and VOCs.

4. Availability of other appropriate federal or state response mechanisms to respond to the release (300.415[b][2][viii])

Neither Washington Department Ecology, Kitsap County, or the landowner have sufficient resources to provide an appropriate or timely response to address the potential human health and ecological risks associated with the landfill contaminants.

B. Threats to the Environment

1. Exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants (300.415[b][2][i])

Contaminants of ecological concern include seven metals (cadmium, copper, lead, manganese, mercury, nickel, and zinc) and two PCBs (Aroclor 1248 and Aroclor 1254). On the landfill surface, terrestrial plants, soil invertebrates, and wildlife may be at risk from high levels of metals in soil. The metals cadmium, lead, nickel, and zinc pose the greatest potential ecological risks. In Gorst Creek downstream from the landfill, sediment PCB levels detected are high enough to reduce growth of benthic macroinvertebrates.

Ecological receptors can become exposed to Site contaminants through direct contact with the contaminants of concern in soil, groundwater, sediment, or surface water; ingestion of the contaminants of concern, and through the food chain by consuming animals and plants that have accumulated Site-related contamination.

2. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate (300.415[b][2][iv])

As described above, cadmium, lead, nickel, and zinc are found at elevated concentrations in surface and subsurface soils and are susceptible to windblown dispersal throughout the facility and adjoining properties. Precipitation runoff from the landfill surface can transport sediment with elevated metals concentrations to Gorst Creek. Additionally, copper and mercury may pose risks due to elevated surface and subsurface soil concentrations.

3. Minimization or elimination of the effects of weather conditions that may cause hazardous substances, pollutants or contaminants to migrate or to be released (300.415[b][2][v])

Heavy rainfall events will cause water to become impounded behind/upstream of the landfill, resulting in elevated water levels within the landfill and contributing to leaching and mobilization of hazardous substances, pollutants or contaminants. Extremely heavy rainfall events will cause water impoundment up to the point where the landfill is overtopped by impounded Gorst Creek water. Overtopping of the landfill will result in scouring of landfill cover, erosion of landfill waste and debris into the downstream reaches of Gorst Creek, mobilizing hazardous substances, pollutants or contaminants within the landfill. Additionally, there is the potential for eroded landfill waste and debris to clog the Washington Highway 3 culvert downstream of the landfill, causing Gorst Creek to impound next to the Highway and threatening erosion of and damage to the Highway embankment and potential flooding of the roadway.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

The statutory limit of \$2,000,000 and 12 month cap does not apply to this non-time critical removal action which will be funded through a settlement with the U.S. Department of Navy.

NCP 300.415(k) states that removals done pursuant to Section 122 of CERCLA, 42 USC 9622, are not subject to restrictions in NCP 300.415(b)(5).

VI. PROPOSED ACTION AND ESTIMATED COSTS

A. Proposed Action

1. Proposed action description

Landfill Removal

The response action to address Gorst Creek Landfill includes removing all landfill contents, off-Site disposal of landfill waste, and reconstruction of the original creek channel. The landfill contents will be excavated, segregated to the extent practicable, and then transported to recycling facilities or landfills for disposal, dependent on waste types.

Reconstruction of Gorst Creek Channel

The Gorst Creek channel will be improved to restore hydraulic functionality and habitat and to provide fish passage capability through the Site. Restoration will include vegetating the ravine slopes, and constructing the creek channel at a gradient similar to the natural configuration prior to landfill development with appropriate rock and woody materials to provide habitat and hydraulic control.

Natural restoration techniques will be utilized to stabilize slopes and stream banks utilizing plants and woody debris. Seeding and rooted plantings will take longer to establish than riprap and other hard armoring stabilization methods, but offers important advantages. The natural restoration approach helps restore a naturally functioning waterway, reduces bank erosion, provides habitat and supports natural biodiversity.

Engineering and Institutional Controls

Engineering and institutional controls will minimize the potential for human exposure to any residual contamination by restricting the development of the Site and use of Site resources. Such controls will also assure the proper hydraulic functioning of Gorst Creek and maintenance of the reconstructed ravine. An enforceable environmental covenant will be developed and recorded to implement such limitations.

Construction Best Management Practices

Appropriate and practicable construction Best Management Practices (BMPs) will be implemented during cleanup activities to protect workers, the community, and the environment from short-term construction impacts such as erosion and sedimentation, fugitive dust, noise, use of public roadways, and other similar potential impacts.

Waste materials will be monitored continuously as they are uncovered during the removal action. Wastes will be evaluated by sampling and laboratory analysis, by field measurements, and by visual observations. Non-hazardous wastes such as inert construction debris will be reused, disposed of, or recycled in accordance with appropriate solid waste disposal or recycling requirements. Hazardous wastes will be segregated, transported and disposed appropriately with hazardous waste profile and waste manifest documentation.

Greener Cleanup Best Management Practices

Appropriate and practicable greener cleanup BMPs will be implemented, to the extent practicable, during cleanup activities, including, but not limited to, minimizing energy consumption (e.g., using new and well-maintained equipment), minimizing generation and transport of fugitive dust (e.g., implementation of construction BMPs), minimizing waste generation through reuse (e.g., concrete and riprap) and recycling (e.g., scrap metal), minimizing impacts to water resources (e.g., implementation of construction stormwater and surface water BMPs), minimizing areas requiring activity or use limitations (e.g., source removal), minimizing unnecessary soil and habitat disturbance, and minimizing lighting and noise disturbance (e.g., implementation of construction BMPs).

Monitoring and Maintenance

The proposed response action will result in the removal of all landfill waste and the reconstruction of the Gorst Creek Ravine. Monitoring and maintenance will be necessary only to assure the proper functioning of the reconstructed Gorst Creek Ravine and the restrictions established by the environmental covenant. Monitoring compliance with environmental covenant will be conducted by the owner of the Site and the Kitsap County Health District. The EPA, at its discretion, may also provide initial monitoring and maintenance of the Site if determined to be necessary or appropriate. Monitoring and maintenance of the restored ravine and creek channel will include only observations and activities related to the successful establishment of vegetation and stabilized slopes and creek channel.

2. Contribution to remedial performance

No further actions are expected for the Site. However, if additional action is required, this action will not impede future actions based on available information.

3. EE/CA

On March 25, 2011, the EPA signed an Approval Memorandum to prepare the EE/CA. A draft EE/CA was prepared in April 2012. Based on the analysis of the nature and extent of contamination and on the cleanup objectives for the Site, a limited number of removal action alternatives were identified and selected for detailed analysis. The EE/CA identified an initial preferred removal alternative that individually and comparatively best satisfied the following evaluation criteria- effectiveness, implementability, and cost.

Notice of the draft EE/CA was published in Kitsap Sun Newspaper on May 16, 2012 and subject to a 30-day public comment ending on June 16, 2012. The draft EE/CA was made available at the Kitsap Regional Library in Bremerton, Washington, and a web site was established at <http://www.epaosc.org/BremertonAutoWreckingGorstCreek> to provide the public with information about the Site and electronic access to the draft EE/CA and other relevant materials.

In a letter dated April 16, 2012, the EPA offered government-to-government consultation to the Suquamish Tribe, which operates a Chinook salmon fish hatchery in Gorst Creek downstream of the Site and has usual and accustom fishing rights in the area. In a letter dated September 16, 2012, the Suquamish Tribe provided the EPA with written comments on the draft EE/CA and requested a meeting to consult with the EPA on the proposed alternatives. An in-person consultation with representatives

from the Suquamish Tribe was conducted on January 25, 2013 to discuss the proposed options in the draft EE/CA. An informal meeting between the EPA and Washington State Department of Fish and Wildlife, and Suquamish Tribe Fisheries was held on January 31, 2013 to discuss their comments on the EE/CA and the potential for creek restoration.

In addition to consulting with the Suquamish Tribe, the EPA received written comments from the Washington Department of Fish and Wildlife and letters of support from the City of Bremerton and the Kitsap County Health Department.

Based on the comments received, and on consideration of the goals and long-term costs of the proposed response action, the EPA determined that the preferred microtunneling/culvert replacement option set forth in the 2012 EE/CA was not appropriate. The WDFW and Suquamish comments opposed the preferred culvert replacement alternative, criticizing the alternative as a temporary solution that would be difficult to maintain and result in the continued impairment and degradation of the creek ecosystem, fish habitat, and fish passage. The WDFW and Suquamish commented that as long as the landfill occupies the stream corridor, there exists a potential for downstream habitat degradation. The commenters also noted that installation of a new culvert under the landfill would not restore fish passage. Fish would not travel upstream through a new 880-foot culvert, so the landfill would continue to be a barrier to the upper reaches of Gorst Creek, precluding access to upstream habitat.

The WDFW raised concerns that the 880-foot culvert would be extremely challenging to maintain and would likely collapse again under the weight of the landfill. The Suquamish raised additional concerns that the streamlined ecological and human health risk assessments in the EE/CA did not adequately consider risks to Tribal populations, who have treaty rights to harvest fish and shellfish in Gorst Creek, a usual and accustomed fishing area for the Suquamish. Both the WDFW and Suquamish supported landfill removal and creek restoration as a more permanent remedy that would restore the creek ecosystem and fish passage and habitat.

The EPA considered and agreed with the comments submitted by the WDFW and the Suquamish. In selecting the response action, the EPA accounted for the practical concerns raised by the commenters. A replaced 880-foot culvert would be difficult to maintain and keep clear of debris, and there is a high probability the culvert would collapse again in the future and require additional response action. The EPA also concluded that although the culvert replacement alternative was cost-effective in the near term, heightened operation and maintenance requirements and the likelihood of a future culvert failure made this alternative less protective and potentially more expensive over the long-term.

4. Applicable or relevant and appropriate requirements

The NCP requires that removal actions attain applicable or relevant and appropriate requirements (ARARs) under federal or state environmental or facility siting laws, to the extent practicable considering the exigencies of the situation (40 C.F.R. § 300.415p). In determining whether compliance with ARARs is practicable, the EPA may consider the scope of the removal action and the urgency of the situation (40 C.F.R. § 300.415[j]). Potential ARARs were screened in the EE/CA.

Refer to Table 2 of the EE/CA for project-related federal and state ARARs.

5. Project schedule

The start of response actions is anticipated on or about January 2016, and the project is estimated to require approximately 10 months to complete the majority of on-site activities. Maintenance and inspection to maintain the stream channel, vegetation, and the restored slope of the ravine will continue for approximately 18 months after completion of major on site activities. This is to assure erosion controls are maintained, the ravine slope remains stabilized, the vegetation becomes properly established, and temporary erosion controls installed on site are removed.

The goal is to establish a natural functioning stream which will support native vegetation and contribute to the establishment of a stable stream channel. Vegetation and natural erosion control measures typically take longer to establish but provide better long term stability than engineering controls such as rip rap or other hard armoring. The goal of the creek restoration is to use natural methods to minimize creek bank erosion while allowing natural processes to function normally.

After completion of the on-site removal activities, and an extended period for maintenance of the erosion control features the removal will be completed and conclude EPAs action.

B. Estimated Costs

The CERCLA agreement between the EPA, ST Trust and Department of the Navy will provide funding for the estimated cost for the recommended removal action, which is estimated at \$27,610,000.00. This estimate includes EPA oversight and contractor costs.

VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If the response action should be delayed or not taken, hazardous substances, pollutants or contaminants at the Site will remain as potential human health and ecological threats.

VIII. OUTSTANDING POLICY ISSUES

Since the landfill will be removed, and the ravine restored similar to pre-landfill condition, the recommended removal action is expected to require minimal long-term maintenance and monitoring. Monitoring and maintenance may be necessary to assure the proper hydraulic functioning of the ravine and successful stabilization of the ravine slopes.

IX. ENFORCEMENT

Refer to attached confidential enforcement addendum.

X. RECOMMENDATION

This decision document sets forth the recommended removal action for the Bremerton Auto Wrecking Landfill—Gorst Creek Site, Kitsap County, Washington, that has been developed in accordance with CERCLA, and is consistent with the NCP. The recommended removal action is based on the administrative record for the Site.

Conditions at the site meet the NCP 40 C.F.R. § 300.415(b) criteria for a removal action and I request your approval of the recommended removal action.

XI. APPROVAL/DISAPPROVAL

By the approval that appears below, the EPA selects the removal action for the Site as set forth in the recommendations contained in this Action Memorandum.

APPROVAL:



Chris Field, Program Manager
Emergency Management Program
Office of Environmental Cleanup

1/20/16

Date

DISAPPROVAL:

Chris Field, Program Manager
Emergency Management Program
Office of Environmental Cleanup

Date

XII. References

1. U.S. Fish and Wildlife Service. August 26, 2010. *Listed and Proposed Endangered and Threatened Species and Critical Habitat; Candidate Species; and Species of Concern in Kitsap County*. Prepared by USFWS, Washington Fish and Wildlife Office. Accessed October 20, 2011 <http://www.fws.gov/wafwo/speciesmap/Kitsap082610.pdf>.
2. National Marine Fisheries Service. August 15, 2011. *Northwest Regional Office Endangered Species Act (ESA) Salmon Listings*. Accessed October 20, 2011. <http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Steelhead/STPUG.cfm> and <http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Chinook/CKPUG.cfm>
3. Huff, Mike (The Suquamish Tribe Fisheries Department). February 28, 2003. Personal communication. Re: types of salmon in Gorst Creek. To Kerrie Stewart, Ecology and Environment, Inc., Seattle, Washington.
4. Washington State Department of Fish and Wildlife. December 2002. *Sensitive Information Reports*.

XIII. Attachments

Confidential Enforcement Addendum

FIGURE 1
SITE LOCATION MAP



Gorst Creek Landfill

Port Orchard, Washington

Figure 1-4
Sample Location Map
July - August 2011

